

**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AIR QUALITY CONSTRUCTION PERMIT**

Permit No. 273CP01

Final – November 25, 2002

**Phillips Alaska, Inc.
Kuparuk Central Production Facility #2
Permit Revisions Pertaining to Emission Limits**

The Department of Environmental Conservation, under the authority of AS 46.03, AS 46.14, AS 46.40, 6 AAC 50, 18 AAC 15, and 18 AAC 50.315, issues an Air Quality Construction Permit to:

Owner(s):

Phillips Alaska, Inc.
700 G Street
P.O. Box 100360
Anchorage, AK 99510-0360

Exxon Company, USA
800 Bell Street, Room 2917
P.O. Box 2180
Houston, TX 77252-2180

BP Exploration (Alaska) Inc
900 E. Benson Blvd.
P.O. Box 196612
Anchorage, AK 99519-6612

Union Oil Company of California
909 West 9th Ave
P.O. Box 190247
Anchorage, AK 99519-0247

Chevron USA Production Co.
P.O. Box 1635
Houston, TX 77251

Mobil Oil Corporation
12450 Greenspoint Drive
Houston, TX 77060-1991

The department authorizes the following revisions to Operating Permit No. 9373-AA005:

- the rated capacity for the equipment listed in Exhibit A;
- the short-term and annual emission limits for equipment listed in Exhibit B; and
- minor deletions from the requirements of Exhibit C;

in accordance with the terms and conditions of this permit, and as described in the original permit application. This permit also authorizes the permittee to operate the proposed equipment as provided by AS 46.14.120.

John F. Kuterbach, Manager
Air Permits Program

Date

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PERMIT TERMS AND CONDITIONS

A. 18 AAC 50.340(i): Permit Continuity

1. This permit rescinds and replaces Air Quality Control Permit to Operate No. 9373-AA005 as amended through December 20, 1996.
2. Except as provided herein the requirements contained in Air Quality Control Permit to Operate No. 9373-AA005, as amended through December 20, 1996, remain in effect until superseded by an Operating Permit issued under AS 46.14.170.
3. Exhibit A in this permit is a revision to Exhibit A, Source Inventory, of Air Quality Control Permit to Operate No. 9373-AA005, to incorporate modifications.
4. Exhibit B in this permit is a revision to Exhibit B, Air Contaminant Emission Limits, Standards, Fuel Specifications, and Operating Limits, of Air Quality Control Permit to Operate No. 9373-AA005, to incorporate modifications.
5. Exhibit C in this permit is a revision to Exhibit C, Process Monitoring Requirements, of Air Quality Control Permit to Operate No. 9373-AA005, to incorporate modifications.

C. Record Keeping, Reporting, and Testing Conditions

6. The permittee shall keep records of required monitoring data and support information for at least five years after the date of the collection; support information includes calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of reports required by this permit. The permittee shall keep monitoring and compliance records as required by the Clean Air Act and applicable federal air quality regulations.

F. 18 AAC 50.055: Industrial Processes and Fuel-Burning Equipment

7. The permittee shall comply with 18 AAC 50.055(a)(1) for visible emissions, 18 AAC 50.055(b)(1) for particulate matter emissions, and 18 AAC 50.055(c) for sulfur compound emissions as follows:
 - 7.1 Visible emissions, excluding condensed water vapor, from an industrial process or fuel-burning equipment may not reduce visibility through the exhaust effluent by either
 - a. more than 20% for more than three minutes in any one hour¹, or
 - b. more than 20% averaged over any six consecutive minutes².
 - 7.2 Particulate matter emitted from an industrial process or fuel-burning equipment may not exceed 0.05 grains per cubic foot of exhaust gas corrected to standard

¹ For purposes of this permit, the “more than three minutes in any one hour” criterion in this condition will no longer be effective when the Air Quality Control (18 AAC 50) regulation package effective 5/3/02 is adopted by the U.S. EPA.

² The six-minute average standard is enforceable only by the state until 18 AAC 50.055(a)(1), dated May 3, 2002, is approved by EPA into the SIP at which time this standard becomes federally enforceable.

conditions and averaged over three hours,

- 7.3 Sulfur-compound emissions, expressed as sulfur dioxide, from an industrial process or from fuel-burning equipment may not exceed 500 ppm averaged over a period of three hours

EXHIBIT A

Source Inventory

Permittee is authorized under this permit to construct the following stationary sources. The design rating and capacity as set out in this exhibit is only for the purpose of aiding in the field identification of the equipment

Equipment Tag No.	Equipment New Tag No.	Rating in AQCP to Operate No. 9373-AA005	New Revised Rating	Explanation
Gas-Fired Turbines				
C2-101-A C2-101-B C2-101-C G-4202-A G-4202-B G-4202-C G-4202-D G-4202-E G-4202-F	No change	15,140 hp ISO 15,140 hp ISO 15,140 hp ISO 4,900 hp ISO 4,900 hp ISO 4,900 hp ISO 4,900 hp ISO 4,900 hp ISO 4,900 hp ISO	No change	None needed
P-2202-A P-2202-B P-CL07-A P-CL07-B	P-CM02-A P-CM02-B P-CM02-C P-CM02-D	5,400 hp ISO 5,400 hp ISO 5,400 hp ISO 5,400 hp ISO	No change	The tag numbers for the four Ruston TB5400 turbines were listed incorrectly in the December 1996 amendment to Permit No. 9373-A005.
Gas-Fired Heaters				
H-4201	No change	22.5 MMBtu/hr	27.8 MMBtu/hr	New information. Correct maximum design rating.
Diesel Fired Equipment				
Not in previous permit	G-4201-A G-4201-B P-4205 P-CM04 P-2B02 P-2C02 P-2D02 P-2F02 P-2G02 P-2H02 P-2T02 P-2U02 P-2W02 P-2X02 P-2Z02	No values	1,086 hp 1,086 hp 235 hp 215 hp 300 hp 300 hp 300 hp 300 hp 300 hp 300 hp 270 hp 300 hp 300 hp 300 hp 300 hp	Not included in previous permit.

Equipment Tag No.	Equipment New Tag No.	Rating in AQCP to Operate No. 9373-AA005	New Revised Rating	Explanation
Flares				
All Flares F1, F2, and F3	H-101A H-KM01 H-KM02	1.6 MMscf/day (pilot, purge, assist) combined total for all flares	1.1 MMscf/day (pilot, purge, assist) combined total for all flares	New information. Correct maximum design rating.
Drill Site Heaters				
Not identified in previous permit	H-2A01 H-2B01 H-2C01 H-2D01 H-2E01 H-2F01 H-2G01 H-2H01 H-2K04-01 H-2K05-01 H-3M01 H-2U01 H-2W01 H-2X01 H-2Z01	72.7 MMBtu/hr Total	14.9 MMBtu/hr 15.4 MMBtu/hr 14.9 MMBtu/hr 14.5 MMBtu/hr 3.0 MMBtu/hr 14.5 MMBtu/hr 14.5 MMBtu/hr 14.9 MMBtu/hr 19.8 MMBtu/hr 19.8 MMBtu/hr 19.5 MMBtu/hr 14.9 MMBtu/hr 23.9 MMBtu/hr 19.4 MMBtu/hr 19.4 MMBtu/hr	New information. Correct maximum design rating. Previous permit did not include all drill site heaters that are aggregated with CPF#2.
Fixed Roof Storage Tanks (>10,000 gallon capacity)				
Not in previous permit	T-4201 T-AN175 T-AN176 T-AN177 T1-P201A T1-P201B T-2A01 T-2B01 T-2C01 T-2D01 T-2E01 T-2F01 T-2G01 T-2H01 T-2K01 T-2M01 T-3M01 T-2U01 T-2V01 T-2W01 T-2X01	No Values	2,000 bbls 595 bbls 595 bbls 476 bbls 55,000 bbls 55,000 bbls 1,200 bbls 1,200 bbls 1,200 bbls 1,200 bbls 580 bbls 1,200 bbls 1,200 bbls 1,200 bbls 870 bbls 870 bbls 673 bbls 1,200 bbls 1,200 bbls 1,200 bbls 1,200 bbls	The storage tanks were not regulated under previous permit.

Equipment Tag No.	Equipment New Tag No.	Rating in AQCP to Operate No. 9373-AA005	New Revised Rating	Explanation
	T-2Z01 T-2Z07B T1-101		1,200 bbls 400 bbls 10,000 bbls	

EXHIBIT B

Air Contaminant Emission Limits, Standards, Fuel Specifications, and Operating Limits

Permittee shall operate each source in compliance with the applicable emission standards specified by 18 AAC 50.040-060, by an applicable federal New Source Performance Standard or National Emission Standard for Hazardous Air Pollutants, by limits established as the result of a BACT or LAER determination, or the requested emission limits, standards, fuel specifications, and operating limits listed below, whichever is most stringent. All emission limitations are annual average, unless otherwise noted.

Note: In the tables below all turbine group emission limits for NO_x refer to full load, ISO conditions. All other emission limits refer to full load, standard conditions.

Sources (Turbines): GE Frame 3 Turbines (C2-101-A, C2-101-B, and C2-101-C), EGT (Ruston) TB5000 Turbines (G-4202-A, G-4202-B, G-4202-C, G-4202-D, G-4202-E, and G-4202-F), and EGT (Ruston) TB5400 Turbines (P-CM02-A, P-CM02-B, P-CM02-C, and P-CM02-D)

Pollutant	Source(s)	Limits in AQCP to Operate No. 9373-AA005	Revised Limits	Explanation
NO _x	GE Frame 3	145 ppmv and 420.5 tpy for each unit	150 ppmv @15% O ₂	1993 ADEC PSD Technical Analysis document set BACT at 150 ppm. Tons per year limit established by EPA PSD BACT and 10/7/97 permit revision. New Information.
	EGT (Ruston) TB5000 Series	125 ppmv @ 16.1 % O ₂ and 106 tpy for each unit	153 ppmv @15% O ₂	
	EGT (Ruston) TB5400 Series	115 ppmv and 98.1 tpy for each unit	115 ppmv @15% O ₂ 2,602 tpy (total for all turbines)	
SO ₂	GE Frame 3	200 ppm H ₂ S in fuel 21.9 tpy each unit	200 ppmv H ₂ S in fuel	EPA PSD BACT and 10/7/97 permit revision.
	EGT (Ruston) TB5000 Series	200 ppm H ₂ S in fuel 6.7 tpy each unit	200 ppmv H ₂ S in fuel	
	EGT (Ruston) TB5400 Series	200 ppm H ₂ S in fuel 7.3 tpy each unit	200 ppmv H ₂ S in fuel 137 tpy (total for all turbines)	
CO	GE Frame 3	109 lb/MMscf and 70.6 tpy for each unit	0.17 lb/MMBtu	EPA PSD BACT and 10/7/97 permit revision

Pollutant	Source(s)	Limits in AQCP to Operate No. 9373-AA005	Revised Limits	Explanation
	EGT (Ruston) TB5000 Series	109 lb/MMscf and 21.5 tpy for each unit	0.17 lb/MMBtu	and new information
	EGT (Ruston) TB5400 Series	109 lb/MMscf and 23.4 tpy for each unit	0.17 lb/MMBtu 764 tpy (total for all turbines)	
PM	GE Frame 3	14.0 lb/MMscf and 4.5 tpy for each unit	63 tpy (total for all turbines)	EPA PSD BACT and 10/7/97 permit revision. EPA did not establish a lb/MMscf limit.
	EGT (Ruston) TB5000 Series	14.0 lb/MMscf and 2.8 tpy for each unit		
	EGT (Ruston) TB5400 Series	14.0 lb/MMscf and 2.8 tpy for each unit		
Opacity	GE Frame 3	20%, 3 min/hr	20%, 3 min/hr 10%, consecutive 6 minute average	EPA PSD BACT and 10/7/97 permit revision.
	EGT (Ruston) TB5000 Series	20%, 3 min/hr	20%, 3 min/hr 10%, consecutive 6 minute average	
	EGT (Ruston) TB5400 Series	20%, 3 min/hr	20%, 3 min/hr 10%, consecutive 6 minute average	
VOC	GE Frame 3	2.3 lb/MMscf and 1.5 tpy for each unit	9.5 tpy (total for all turbines)	EPA PSD BACT and 10/7/97 permit revision. EPA did not establish a lb/MMscf limit.
	EGT (Ruston) TB5000 Series	2.3 lb/MMscf and 0.5 tpy for each unit		
	EGT (Ruston) TB5400 Series	2.3 lb/MMscf and 0.5 tpy for each unit		

Sources (Heaters): Broach Heater (H-4201) and Drill Site Heaters (H-2A01, H-2B01, H-2C01, H-2D01, H-2E01, H-2F01, H-2G01, H-2H01, H-2K04-01, H-2K05-01, H3M01, H-2U01, H-2W01, H-2X01, H-2Z01)

Pollutant	Source(s)	Limits in AQCP to Operate No. 9373-AA005	Revised Limits	Explanation
NO _x	Broach	0.08 lb/MMBtu and 7.9 tpy	0.1 lb/MMBtu	EPA PSD BACT and 10/7/97 permit revision.
	Drill Site	0.08 lb/MMBtu and 157.2 tpy total combined	0.1 lb/MMBtu 131 tpy (total for all heaters)	
SO ₂	Broach	200 ppm H ₂ S in fuel and 3.1 tpy	200 ppm H ₂ S in fuel	EPA PSD BACT and 10/7/97 permit revision.
	Drill Site	200 ppm H ₂ S in fuel and 38 tpy total combined	200 ppm H ₂ S in fuel 36 tons (total for all heaters)	
CO	Broach	0.018 lb/MMBtu and 1.8 tpy	0.035 lb/MMBtu	EPA PSD BACT and 10/7/97 permit revision and new information.
	Drill Site	0.018 lb/MMBtu and 39.2 tpy	0.035 lb/MMBtu (except tag no. H-2E01 which has limit of 0.021 lb/MMBtu) 46 tpy (total for all heaters)	
PM	Broach	2.5 lb/MMscf and 0.3 tpy	15 tpy (total for all heaters)	EPA PSD BACT and 10/7/97 permit revision. EPA did not establish a lb/MMscf limit.
	Drill Site	2.5 lb/MMscf and 2.8 tpy		
VOC	Broach	2.3 lb/MMscf and 0.3 tpy	No Limits	No BACT or other limits apply. EPA did not establish VOC limits for heaters.
	Drill Site	2.3 lb/MMscf and 6.6 tpy	No Limits	

Source: Flare System

Pollutant	Limits in AQCP to Operate No. 9373-AA005	Revised Limit	Explanation
NO _x	14.8 tons per year	No limit.	No BACT limits apply.
SO ₂	200 ppm H ₂ S in fuel and 6.8 tons per year.	No limit.	No BACT limits apply.
CO	80.9 tons per year	No limit.	No BACT limits apply.
PM	0.1 tons per year	No limit.	No BACT limits apply.
VOC	2.3 lb/MMscf and 13.8 tons per year	No limit.	No BACT limits apply.

EXHIBIT C

Process Monitoring Requirements

Permittee shall install, calibrate, operate, and maintain in good working order air contaminant emissions and process monitoring equipment on the sources described below.

MONITORING AND REPORTING REQUIREMENTS

Gas Turbines and Broach Heater Group I & II	A fuel gas meter which indicates the volume of natural gas consumed in each group must be installed or other means of estimating fuel consumption must be provided.
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Fuel Gas	Determine the sulfur (H ₂ S) content of the natural gas burned as fuel once each month. Acceptable methods are ASTM D-4810-88, ASTM 4913-89, Gas Producers Assn. (GPA) method 2377-86 or an alternative analytical method approved by the department.
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